PATENT ABSTRACTS OF JAPAN

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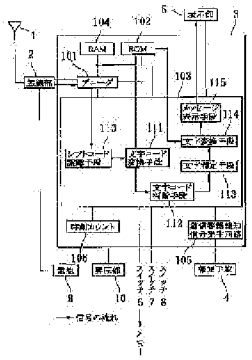
(21)Application number : 11-303187 (71)Applicant : NEC CORP

(22)Date of filing : 25.10.1999 (72)Inventor : TSUCHIYAMA KINYA

(54) METHOD AND DEVICE FOR DISPLAYING CHARACTER AND RECORDING MEDIUM



(57)Abstract:

PROBLEM TO BE SOLVED: To effectively utilize a display region and to improve operability for a user by converting and display a character having voice sound or semi- voiced sound or an attached letter into one character.

SOLUTION: A character display device receives character codes and displays

characters. The device is provided with a shift codes recognizing means 110 which recognizes the inputted character codes, a character code converting means 111 which converts the character codes, that are shift code recognized by the means 110, into characters, a character code judging means 112 which judges whether the character converted by the means 111 is a character having an attached letter or not, a character converting means 114 which combines the character determined by the means 112 as an attached character with a previous character and converts the characters into one character, and a displayed means 115 which displays the character converted by the means 114 on a display section 5.

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CLAIMS

[Claim(s)]

[Claim 1] It is the character representation approach characterized by what what changed and changed said character code into the alphabetic character or the subscript in the character representation approach which inputs a character code and carries out character representation to a display judges the subscript attached before and after the alphabetic character or the alphabetic character, one front stirrup will be together put with a next alphabetic character, and it will change into one character if it is a subscript, and is displayed on an one-character field.

[Claim 2] Said subscript is the character representation approach according to claim 1 characterized by being a voice sound symbol or a semivoiced sound mark.

[Claim 3] Said character code is sent as a double figures figure unit, takes out this character code a double figures figure at a time, and changes it into an alphabetic character. Judge whether the changed alphabetic character is a voice sound symbol or a semivoiced sound mark, and if the alphabetic character is a voice sound symbol or a semivoiced sound mark, the alphabetic character in front of one will be judged. The character representation approach according to claim 2 characterized by changing into the dulness or the p-sound which it should cut by carrying out when judged with the alphabetic character being able to adhere with a voice sound symbol or a semivoiced sound mark, and displaying

the changed alphabetic character on an one-character field.

[Claim 4] The character representation approach according to claim 1, 2, or 3 characterized by what a user chooses whether character representation with a subscript is carried out to making [it / an one character field] field use of two or more characters, and is displayed according to the selected method of presentation.

[Claim 5] A shift code recognition means for it to be inputted and to recognize said character code in the character display which inputs and displays a character code, A character code conversion means to change a shift code recognition backward character code into an alphabetic character or a subscript with this shift code recognition means, A character code decision means by which what was changed with this character code conversion means judges an alphabetic character or a subscript, It is the character display characterized by having a transliteration means to put a front stirrup together with a next alphabetic character if it is the subscript which was judged by this character code decision means, and to change into one character, and a message indicator means to display the alphabetic character changed by this transliteration means on a display.

[Claim 6] A character code decision means is character display according to claim 5 characterized by changing into appropriate dulness or an appropriate p-sound with said transliteration means when it judges whether it is a voice sound symbol or the semivoiced sound mark which was changed with said character code conversion means, and was a voice sound symbol or a semivoiced sound mark and is judged with it being possible to adhere with a voice sound symbol or a semivoiced sound mark with an alphabetic character judging means to judge the alphabetic character in front of one.

[Claim 7] Character display according to claim 5 or 6 characterized by displaying a message according to the method of presentation which formed the display selection-menu switch whose user can choose whether an indication with a subscript is given to making [it / an one character field] field use of two or more

characters, and the user set up beforehand with a display selection-menu switch.
[Claim 8] It is the record medium which changed the character code into the alphabetic character or the subscript, and recorded the character representation program which what was changed judges the subscript attached before and after the alphabetic character or the alphabetic character, will put one front stirrup together with a next alphabetic character, will change into one character if it is a subscript, and is displayed on an one-character field.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the character display and the record medium which enforce the character display which changes and displays an alphabetic character with subscripts, such as a voice sound symbol or a semivoiced sound mark, on a single character in detail, and this approach with respect to character display and character display.
[0002]
[Description of the Prior Art] Conventionally, the character code (for example,

free WORD) sent as a double figures figure unit is received, and a cellular phone, PHS, the pocket bell, the pager, etc. are known as a character display device displayed with the alphabet, a figure, the Cana notation, etc. As a computer system which processes a Japanese text to JP,4-252353,A as this kind of a technique, when the inputted alphabetic character detects whether it is an alphabetic character including a voice sound symbol or a semivoiced sound mark and includes a voice sound symbol or a semivoiced sound mark, the technique which separates an alphabetic character, a voice sound symbol, or a semivoiced sound mark a single character every, and is made into 2 character representation is indicated. moreover, when the message alphabetic character which includes a voice sound symbol or a semivoiced sound mark in the last digit of display each line is displayed on JP,9-205663,A, the technique which always displays the Kiyone and voice sound symbol, or a semivoiced sound mark on the same line (a voice sound symbol or a semivoiced sound mark -- the right-hand in Kiyone) is indicated.

[0003] Moreover, when the alphabetic character which is attached to the alphabetic character of fronts, such as dulness, a p-sound, a contracted sound, and a geminated consonant, and makes semantics comes to the head of the sentence, the technique of a walkie-talkie of performing a display control which advances line feed of one character and performs it is indicated by JP,10-333667,A. That is, in the wireless inside of a plane, it has a shift code recognition means to recognize the received character code, a character code conversion means to change a character code a double figures figure at a time into an ejection alphabetic character etc., and a message indicator means to display the changed message.

[0004]

[Problem(s) to be Solved by the Invention] by the way, since each above-mentioned **, with the technique, when displaying dulness and a p-sound on a display, as shown in drawing 7 , the viewing area for two characters (field shown by the underline) will be used to one sound (for example, GA, PA, Di), and it has

become the hindrance of effective use of a viewing area in the display of the character display with which a viewing area is restricted. Furthermore, there was what Kiyone, a voice sound symbol, and a semivoiced sound mark separate by line feed etc., and is also displayed (part of Di of drawing 7), and there was a problem of becoming a display gestalt hard to see for a user.

[0005] A user carries around especially, or in the pocket-type character display used during migration, the magnitude of a display is also restricted so that it may be easy to carry. However, since the amount of data to display is increasing increasingly, it is becoming important to make it display on a display efficiently. This invention was made in view of the above-mentioned situation, and aims at offering the character display, the character display, and the record medium which aimed at effective use of a viewing area, and improvement in a user's user-friendliness by changing and displaying an alphabetic character with subscripts, such as a voice sound symbol or a semivoiced sound mark, on one character.

[0006]

[Means for Solving the Problem] It is characterized by what what changed and changed said character code into the alphabetic character or the subscript in the character representation approach which invention according to claim 1 inputs a character code in order to solve the above-mentioned technical problem, and carries out character representation to a display judges the subscript attached before and after the alphabetic character or the alphabetic character, one front stirrup will be together put with a next alphabetic character if it is a subscript, and it changes into one character, and is displayed on an one-character field.

[0007] Invention according to claim 2 is characterized by said subscript being a voice sound symbol or a semivoiced sound mark with respect to character display according to claim 1.

[0008] Invention according to claim 3 relates to character display according to claim 1 or 2. Said character code is sent as a double figures figure unit, takes out this character code a double figures figure at a time, and changes it into an

alphabetic character. Judge whether the changed alphabetic character is a voice sound symbol or a semivoiced sound mark, and if the alphabetic character is a voice sound symbol or a semivoiced sound mark, the alphabetic character in front of one will be judged. It is characterized by changing into the dulness or the p-sound which it should cut by carrying out, when judged with the alphabetic character being able to adhere with a voice sound symbol or a semivoiced sound mark, and displaying the changed alphabetic character on an one-character field.

[0009] A user chooses whether a message indicator with a subscript is made into making [it / an one character field] the field of two or more characters, and invention according to claim 4 is characterized by what is displayed according to the selected method of presentation.

[0010] A shift code recognition means for invention according to claim 5 to be inputted with respect to the character display which inputs and displays a character code, and to recognize said character code, A character code conversion means to change a shift code recognition backward character code into an alphabetic character or a subscript with this shift code recognition means, A character code decision means by which what was changed with this character code conversion means judges an alphabetic character or a subscript, If it is the subscript which was judged by this character code decision means, it will be characterized by equipping a front stirrup with a transliteration means to put together with a next alphabetic character and to change into one character, and a message indicator means to display the alphabetic character changed by this transliteration means on a display.

[0011] Invention according to claim 6 relates to invention according to claim 5. Said character code decision means It is what judges whether the character code changed with said character code conversion means is a voice sound symbol or a semivoiced sound mark. When the alphabetic character judged by this character code decision means was a voice sound symbol or a semivoiced sound mark and it is judged with it being possible to adhere with a voice sound symbol or a semivoiced sound mark with an alphabetic character judging means

to judge the alphabetic character in front of one, it is characterized by changing into appropriate dulness or an appropriate p-sound with said transliteration means.

[0012] Invention according to claim 7 forms the display selection-menu switch whose user can choose whether an indication with a subscript is given to making [it / an one character field] field use of two or more characters with respect to invention according to claim 5 or 6, and is characterized by displaying a message according to the method of presentation which the user set up beforehand with a display selection-menu switch.

[0013] If what changed the character code into the alphabetic character or the subscript, and was changed judges the subscript attached before and after the alphabetic character or the alphabetic character and invention according to claim 8 is a subscript, one front stirrup is the record medium which recorded the character representation program which puts together with a next alphabetic character, changes into one character, and is displayed on an one-character field.

[0014]

[Embodiment of the Invention] Hereafter, the gestalt of implementation of this invention is explained with reference to a drawing. Drawing in which the flow chart with which drawing in which drawing showing the example of use for which drawing in which the block diagram of the character display device whose drawing 1 is the gestalt of 1 implementation of this invention, and drawing 2 show the example of the conversion table of a character code, and drawing 3 used the sign of termination, and drawing 4 show the example of a character code conversion display, and drawing 5 show actuation of the character display device of drawing 1 , and drawing 6 show the example of a message indicator of this invention, and drawing 7 are drawings showing the conventional example of a message indicator.

[0015] The character display device shown in drawing 1 is the example applied to the wireless data terminal, through an antenna 1, the sending signal sent from the transmitter is supplied to the wireless section 2, and recovery processing is

carried out. The wireless section 2 is operating in response to supply of cell voltage from the cell 9. The signal to which it restored in the wireless section 2 is decoded in a control section 3, and when in agreement with the individual recognition signal with which this decoded signal was given to character display, the information means 4, such as LED, singing, or vibration, report that there was arrival of the mail to a user. If the message etc. is sent to coincidence, it will display on a display 5 and the contents will be further recorded on RAM104 of a control section 3.

[0016] By pushing a switch 7 and a switch 8, a user can read a description at any time. In addition, a switch 6 is a menu switch for going into the menu mode which sets up various functions, and can return to the screen in front of one by carrying out the depression of this switch 6. A switch 7 is a definite switch at the time of selection, when it goes into a menu mode, and if it pushes at the time of receiving ******, it can be read in order of a message to an old new message. A switch 8 is a selecting switch at the time of selection, when it goes into a menu mode, and if it pushes at the time of receiving ******, it can be read in order of a message to an old new message. The pressure-up section 10 is for supplying a necessary electrical potential difference to a control section 3.

[0017] A decoder 101 compares the individual recognition signal inputted from the wireless section 2 with the individual recognition signal beforehand stored in ROM102, and when both are in agreement, it sends out a terminating signal to CPU103. If a terminating signal is received, CPU103 will issue an instruction so that an arrival-of-the-mail information signal may be generated to the arrival-of-the-mail alarm information signal generating circuit 105. Consequently, the arrival-of-the-mail alarm information signal generating circuit 105 sends out an arrival-of-the-mail information signal to the information means 4. Furthermore, if the message signal continues after the individual recognition signal inputted from the wireless section 2, a decoder 101 transmits a message signal to CPU13, in CPU103, will change a message signal into a character-font signal, and will send out and display it on a display 5. CPU103 stores a message signal in RAM104 at

coincidence. The time-of-day count 106 which performs a time-of-day count is connected to the decoder 101.

[0018] External storage to the shift code recognition subprogram which does not illustrate CPU103, A character code conversion subprogram and a character code decision subprogram, When the character representation program which consists of an alphabetic character judging subprogram, a transliteration subprogram, and a message indicator subprogram is read, by control of these subprograms A shift code recognition means 110 to recognize a shift code from the data received and detected as shown in drawing 1 , A character code conversion means 111 to change a character code a double figures figure at a time into an extraction alphabetic character etc., A character code decision means 112 to judge whether the character code changed with this character code conversion means 111 is a voice sound symbol, An alphabetic character judging means 113 to judge the alphabetic character in front of one if the alphabetic character judged by this character code decision means 112 is a voice sound symbol, It functions as a thing equipped with a transliteration means 114 to change into appropriate dulness when judged with it being possible to adhere with a voice sound symbol with this alphabetic character judging means 113, and a message indicator means 115 to display the alphabetic character changed by this transliteration means 114. In addition, a character code conversion table (refer to drawing 2) and the contents of conversion are set up beforehand, and are stored in said ROM102.

[0019] CPU103 is always carrying out the monitor of the condition of three switches 6, 7, and 8, and when the logic of each switch input terminal to CPU103 changes from **H** to ** L **, it has detected the condition of saying that each switch was pushed. Drawing 2 shows the example of the conversion table of a character code (free WORD). Free WORD sends notations, such as the U.K., a number, and Cana, as a double figures figure unit. A user is taken as what can set up authorization and prohibition of matrix expansion before use of character display. For example, YU 1 THE displays [make / into a shift code / *3+*4] by a

****** case carrying out free WORD expansion of the combination of *3+*4+NN (it is here and NN is taken as double digits (00-99)). thus, the shift code set up beforehand -- continuing -- a line, a train, a line, and a train -- the data received like ... are developed according to drawing 2 .

[0020] Initiation of expansion of a character code displays by performing character code conversion, considering as shift in by the double figures shift code, and using as one character the figure of two characters which continues after it. Termination of character code expansion is SP [a tooth-space sign], **U**, **-** [a hyphen], **** [a right parenthesis], and ** (it ends according to recognition of a termination code like ** [a left parenthesis].) in shift in. The example of use using these termination codes is shown in drawing 3 . For example, in the example of tooth-space use, the tooth-space sign SP is received and the sign of termination is displayed as it is (it is below the same). Moreover, U10-20 are received in the example of U use at the time of = (*3+*4) (-, -), and -10-10 are received in the example of hyphen use at the time of = (*3+*4) (-, -). When a message error arises in a character code, character code conversion is ended at the time, and message error actuation is performed.

[0021] The example of a character code conversion display is shown in drawing 4 . This example shows the example of the message indicator to the received message and display 5 at the time. [assignment / of = (*3+*4) (-, -)] Next, actuation of the above-mentioned character display is explained with reference to the flow chart of drawing 6 . After an electric power switch injection, a character display device is awaited, and will be in a condition, and a control section 3 will carry out the monitor of the transmit data (step S1). In CPU103 in a control section 3, it judges whether when an individual recognition signal is received (step S2), the individual recognition signal which the shift code recognition means 111 in CPU103 received is a shift code (step S3), and in "YES" (i.e., when a shift code is detected), the result of this decision takes a double figures figure from a shift code or subsequent ones, and sends out the shift code recognition means 110 to the character code conversion means 111 (step S4).

On the other hand, when the result of decision of step S3 is "NO" (i.e., when not detecting a shift code), the message which received is processed as an ordinary message (step S13), and is displayed on a display 5 (step S14).

[0022] The data after the sent shift code judge whether it is a termination code (step S5), and if the character code conversion means 111 is not a termination code, it will start free WORD conversion for the data according to the free WORD conversion table of drawing 3 per double figures figure (step S6). After free WORD conversion, the changed data judge whether it is a voice sound symbol (step S7), and if it is a voice sound symbol, the alphabetic character judging means 113 will go to judge the alphabetic character in front of one of them (step S8). As a result of judging the alphabetic character in front of one, it judges whether they are a voice sound symbol and the thing which may adhere (step S9), when becoming dulness, a transliteration is performed, dulness is made into 1 character representation (step S10), and a display gestalt is determined (step S11).

[0023] In step S7, as a result of judging with the free WORD decision means 20, when it is not a voice sound symbol, a display as it is determines and carries out (step S11), and if not adhering with a front alphabetic character with the alphabetic character judging means 113 is judged even if it is a voice sound symbol (step S9), a display as it is will be determined (step S11). If a display gestalt is determined, it will go to take the double figures figure as follows (step S12), the processing after the above-mentioned step S5 is repeated, and in step S5, if the shift code of free WORD conversion termination is recognized, the data after it will be treated as an ordinary message (step S13). All data are judged, and if a display gestalt is determined, the message indicator means 115 will display the message as the determined display gestalt on a display 5 (step S14). Although it is drawing having shown the example of the message indicator approach of this invention, and the field for two characters is used in the conventional example of drawing 7 in case dulness or a p-sound is displayed, as for drawing 6 , it turns out by drawing 6 that it is displaying using the field for one

character.

[0024] As mentioned above, although the example of this invention has been explained in full detail with the drawing, a concrete configuration is not restricted to this example, and even if there is modification of a design of the range which does not deviate from the summary of this invention etc., it is included in this invention. For example, although the above-mentioned character display device showed the example of a wireless data terminal, it cannot limit to this and can apply to the device which has not only all communication equipment, such as a computer, a personal computer, and a word processor, but also a display. Moreover, although the example of the free WORD which sends notations, such as the U.K., a number, and Cana, as a double figures figure unit was shown as a character code, it is not limited to this but all the coded alphabetic characters can be applied. Moreover, although the gestalt of the above-mentioned implementation explained only the voice sound symbol, a front stirrup is applicable to all the alphabetic characters of the so-called subscript (an alphabetic character, a figure, notation) of the small letter which adheres on a next alphabetic character or to the bottom as well as a semivoiced sound mark. For example, all are applicable to an alphabetic character with a subscript (d) d [(a) thru/or] As shown in drawing 8 . In addition, what is necessary is just to display on the alphabetic character and the one-character field in all of order in all the cases of the other subscript, although it judges whether it adheres with a front alphabetic character (Kiyone) with the alphabetic character judging means 113 in the case of a voice sound symbol or a semivoiced sound mark. Moreover, a user chooses whether a message indicator with a subscript is made into making [it / two character field use] the field of one character, and it can display according to the selected method of presentation. For example, the conventional gestalt which carries out two-character field use, and the gestalt displayed in the one-character field shown with the gestalt of this operation can be displayed according to the method of presentation which the user set up by pushing the menu switch 6 for going into the menu mode which sets up various functions.

[0025]

[Explanation of effectiveness] While becoming possible to utilize a viewing area more effectively in the display of the character display with which a display field is restricted according to the character display and character display of this invention since the 2 numbers of dots for character on soft copy of an alphabetic character + subscript are changed into the 1 number of dots for character on soft copy in case an alphabetic character with a subscript is displayed as explained above, it becomes a display gestalt legible also for YU 1 ZA, and offer of more user-friendly character display is attained.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the block diagram of the character display device which is the gestalt of implementation of this invention.

[Drawing 2] It is drawing showing the example of the conversion table of free WORD.

[Drawing 3] It is drawing showing the example of use using the sign of termination.

[Drawing 4] It is drawing showing the example of a free WORD conversion display.
[Drawing 5] It is the flow chart which shows actuation of the character display device of this invention.
[Drawing 6] It is drawing showing the example of a message indicator of this invention.
[Drawing 7] It is drawing showing the example of the alphabetic character to display and a subscript.
[Drawing 8] It is drawing showing the conventional example of a message indicator.
[Description of Notations]
5 Display
110 Shift Code Recognition Means
111 Free WORD Conversion Means
112 Free WORD Decision Means
113 Alphabetic Character Judging Means
114 Transliteration Means
115 Message Indicator Means

[Translation done.]

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DRAWINGS

[Drawing 2]

行＼列	1	2	3	4	5	6	7	8	9	0
1	ア	イ	ウ	エ	オ	A	B	C	D	E
2	カ	キ	ク	ケ	コ	F	G	H	I	J
3	サ	シ	ス	セ	ソ	K	L	M	N	O
4	タ	チ	ツ	テ	ト	P	Q	R	S	T
5	ナ	ニ	ヌ	ネ	ノ	U	V	W	X	Y
6	ハ	ヒ	フ	ヘ	ホ	Z	?	!	−	／
7	マ	ミ	ム	メ	モ	¥	&	○	◇	△
8	ヤ	(	ユ	)	ヨ	*	#	SP	〒	SP
9	ラ	リ	ル	レ	ロ	1	2	3	4	5
0	ワ	ヲ	ン	'	°	6	7	8	9	0

[Drawing 3]

終了の符号を用いた使用例

<スペース使用例>

受信 ：「＊3＊44513228513SP03」

表示 ：「トウキョウ 03」

<U使用例(＊3＊4)＝(−, −)の時>

受信 ：「—4513228513U10−20」

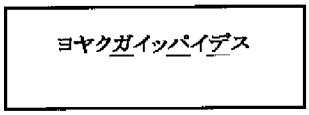
表示 ：「トウキョウU10−20」

<ハイフン使用例(＊3＊4)＝(−, −)の時>

受信 ：「— 4513228513−10−10」

表示 ：「トウキョウ−10−10」

[Drawing 6]

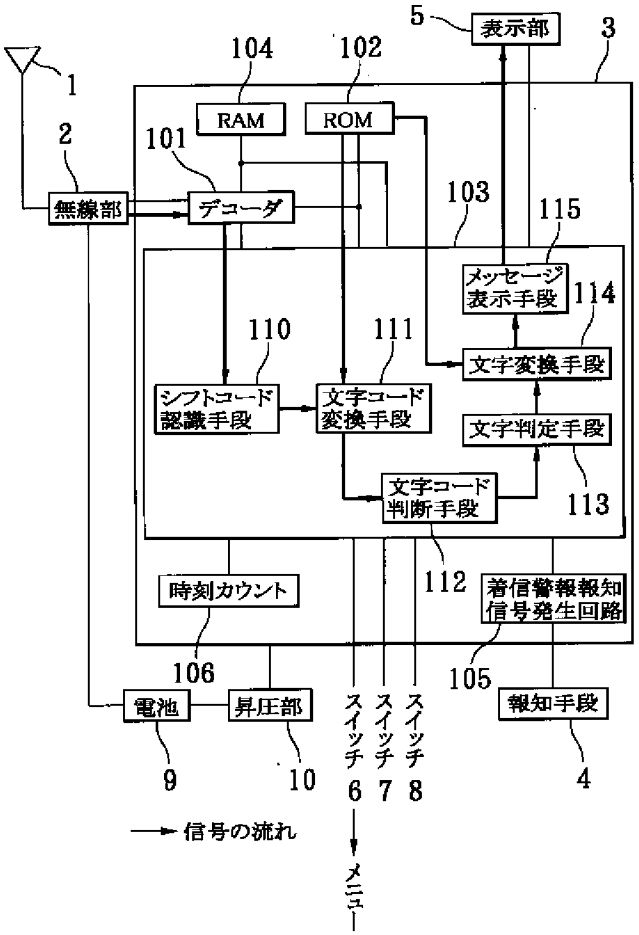


[Drawing 7]

(a) (b) (c) (d) (e)

X_2, Y^2, a^n, ^2H A'

[Drawing 1]



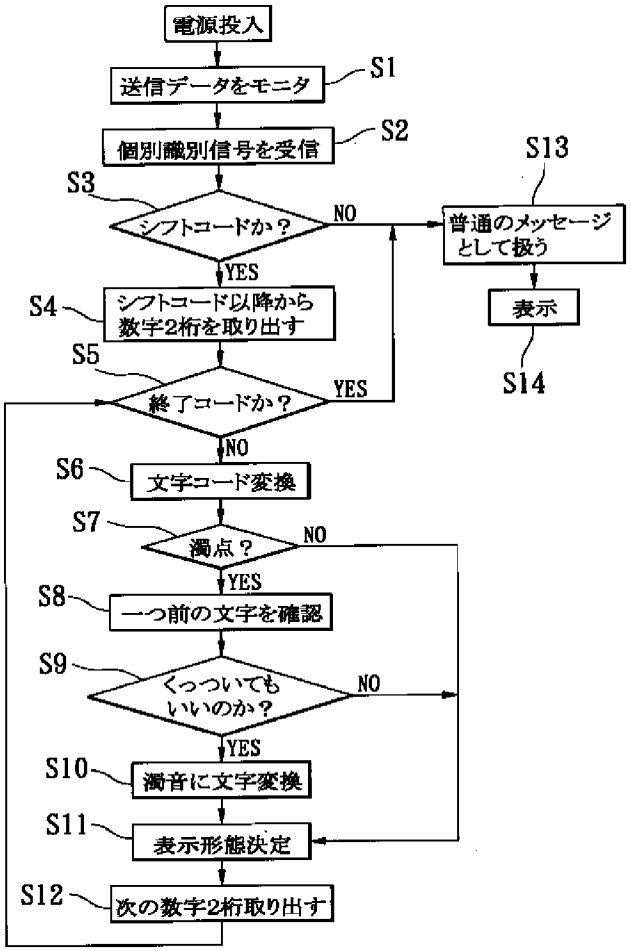
[Drawing 4]

フリーワード変換表示例

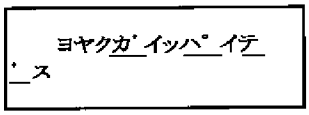
(＊3＊4)＝(－, －)の指定の時

受信メッセージ	メッセージ表示
「109—32630481(SP)10－00」	「109シブヤ 10—00」
「109——32630481[10])」	「109－シブヤ[10]」
「109—326304815—3204」	「109シブヤ5ジ」
「—32630481——719312」	「シブヤーマルイ」
「———320332048323」	「—シンジュク」

[Drawing 5]



[Drawing 8]



[Translation done.]

(19)日本国特許庁（ＪＰ）　(12) **公開特許公報**（Ａ）　(11)特許出願公開番号
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（P2001－125559A）
(43)公開日　平成13年５月11日(2001.5.11)

(51)Int.Cl.[7]	識別記号	ＦＩ		テーマコード*（参考）
Ｇ０９Ｇ　5/24	６３０	Ｃ０９Ｇ　5/24	６３０Ｓ	５Ｂ００９
Ｇ０６Ｆ　17/21		5/22	６３０Ｍ	５Ｃ０８２
Ｇ０９Ｇ　5/22	６３０	Ｇ０６Ｆ　15/20	５６３Ｊ	

審査請求　有　　請求項の数８　ＯＬ　（全　６　頁）

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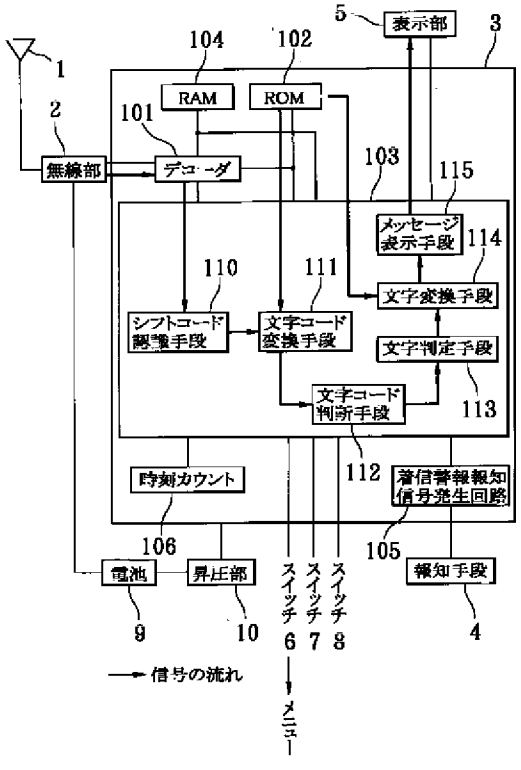
Ｆターム(参考)　5B009 RA18
5C082 AA01 BA02 BB22 BB25 CA02
CA66 CB03 DA61 DA87 MM04
MM09

(54)【発明の名称】　文字表示方法及び文字表示装置及び記録媒体

(57)【要約】
【課題】　濁音や半濁音、その他の添字付きの文字を１文字に変換して表示することにより、表示領域の有効活用とユーザの使い勝手の向上を図る。
【解決手段】　文字コードを入力して表示する文字表示装置において、入力した前記文字コードを認識するシフトコード認識手段１１０と、該シフトコード認識手段１１０によりシフトコード認識後文字コードを文字に変換する文字コード変換手段１１１と、該文字コード変換手段１１１により変換した文字が添字であるかを判断する文字コード判断手段１１２と、該文字コード判断手段１１２により判定された文字が添字であれば前の文字とくっつけて１文字に変換する文字変換手段１１４と、該文字変換手段１１４により変換された文字を表示部５に表示する表示手段１１５と、を備える。



【特許請求の範囲】
【請求項１】　文字コードを入力して表示部に文字表示する文字表示方法において、前記文字コードを文字又は添字に変換し、変換したものが文字か文字の前後に添えられた添字かを判断し、添字であれば一つ前又は後の文字とくっつけて１文字に変換して１文字領域に表示することを特徴とする文字表示方法。
【請求項２】　前記添字は、濁点又は半濁点であることを特徴とする請求項１記載の文字表示方法。
【請求項３】　前記文字コードは数字２桁単位として送られ、該文字コードを数字２桁づつ取り出して文字に変換し、変換した文字が濁点又は半濁点であるか否かを判断し、その文字が濁点又は半濁点であれば一つ前の文字を判定し、その文字が濁点又は半濁点とくっつくことが可能であると判定された場合しかるべき濁音又は半濁音に変換し、変換された文字を１文字領域に表示することを特徴とする請求項２記載の文字表示方法。
【請求項４】　添字のある文字表示を１文字領域にするか複数文字領域使用にするかをユーザが選択し、その選択した表示方法に従い表示することを特徴とする請求項１、２又は３記載の文字表示方法。
【請求項５】　文字コードを入力して表示する文字表示装置において、入力され前記文字コードを認識するシフトコード認識手段と、該シフトコード認識手段によりシフトコード認識後文字コードを文字又は添字に変換する文字コード変換手段と、該文字コード変換手段により変換したものが文字か添字かを判断する文字コード判断手段と、該文字コード判断手段により判定されたものが添字であれば前又は後の文字とくっつけて１文字に変換する文字変換手段と、該文字変換手段により変換された文字を表示部に表示するメッセージ表示手段と、を備えたことを特徴とする文字表示装置。
【請求項６】　文字コード判断手段は、前記文字コード変換手段により変換したものが濁点又は半濁点であるかを判断するものであり、濁点又は半濁点であれば一つ前の文字を判定する文字判定手段により濁点又は半濁点とくっつくことが可能であると判定された場合前記文字変換手段によりしかるべき濁音又は半濁音に変換することを特徴とする請求項５記載の文字表示装置。
【請求項７】　添字のある表示を１文字領域にするか複数文字領域使用にするかをユーザが選択できる表示選択メニュースイッチを設け、表示選択メニュースイッチにより予めユーザが設定した表示方法に従いメッセージを表示することを特徴とする請求項５又は６記載の文字表示装置。
【請求項８】　文字コードを文字又は添字に変換し、変換したものが文字か文字の前後に添えられた添字かを判断し、添字であれば一つ前又は後の文字とくっつけて１文字に変換して１文字領域に表示する文字表示プログラムを記録した記録媒体。

【発明の詳細な説明】
【０００１】
【発明の属する技術分野】この発明は、文字表示装置及び文字表示装置に係わり、詳しくは、濁点又は半濁点等の添字付きの文字を一文字に変換し表示する文字表示装置及びこの方法を実施する文字表示装置及び記録媒体に関する。
【０００２】
【従来の技術】従来、数字２桁単位として送られる文字コード（例えばフリーワード）を受信し、英字、数字、カナ記号等で表示する文字表示装置として、例えば、携帯電話、ＰＨＳ、ポケットベル、ページャー等が知られている。この種の技術として、例えば、特開平４－２５２３５３号公報には、日本語の文章を処理するコンピュータシステムとして、入力された文字が濁点又は半濁点を含む文字か否かを検出し、濁点又は半濁点を含む場合、文字と濁点又は半濁点を一文字づつ分離して２文字表示とする技術が開示されている。また、特開平９－２０５６６３号公報には、表示部各行の最終桁に濁点又は半濁点を含むメッセージ文字が表示される場合は、その清音と濁点又は半濁点とを常に同一行（濁点又は半濁点を清音の右隣に）に表示する技術が開示されている。
【０００３】また、特開平１０－３３３６６７号公報には、濁音、半濁音、拗音、促音等のような前の文字に付属させて意味をなす文字が行頭にくる場合には改行を１文字繰り上げて行うような表示制御を行う無線機の技術が開示されている。すなわち、無線機内には受信した文字コードを認識するシフトコード認識手段と、文字コードを数字２桁づつ取り出し文字等に変換する文字コード変換手段と、変換したメッセージを表示するメッセージ表示手段とを有している。
【０００４】
【発明が解決しようとする課題】　ところで、上記各従来技術では、濁音や半濁音を表示部に表示させる場合は、図７に示すように、１つの音（例えば、ガ、パ、デ）で２文字分の表示領域（下線で示す領域）を使用することになり、表示領域が制限される文字表示装置の表示部において表示領域の有効活用の妨げとなっている。さらに、改行等により、清音と濁点や半濁点が離れて表示される（図７のデの部分）こともあり、ユーザにとって見にくい表示形態となるという問題があった。
【０００５】特に、ユーザが持ち歩いたり、移動中に使用する携帯式の文字表示装置においては、持ち運びやすいように、表示部の大きさも制限される。ところが、表示させるデータ量はますます増加しているため、表示部に効率良く表示させることが重要になってきている。この発明は、上述の事情に鑑みなされたもので、濁点又は半濁点等の添字付きの文字を１文字に変換して表示することにより、表示領域の有効活用とユーザの使い勝手の向上を図った文字表示装置及び文字表示装置及び記録媒

体を提供することを目的としている。
【０００６】
【課題を解決するための手段】上記課題を解決するため、請求項１記載の発明は、文字コードを入力して表示部に文字表示する文字表示方法において、前記文字コードを文字又は添字に変換し、変換したものが文字か文字の前後に添えられた添字かを判断し、添字であれば一つ前又は後の文字とくっつけて１文字に変換して１文字領域に表示することを特徴とする。
【０００７】請求項２記載の発明は、請求項１記載の文字表示装置に係わり、前記添字は、濁点又は半濁点であることを特徴とする。
【０００８】請求項３記載の発明は、請求項１又は２記載の文字表示装置に係わり、前記文字コードは数字２桁単位として送られ、該文字コードを数字２桁づつ取り出して文字に変換し、変換した文字が濁点又は半濁点であるか否かを判断し、その文字が濁点又は半濁点であれば一つ前の文字を判定し、その文字が濁点又は半濁点とくっつくことが可能であると判定された場合しかるべき濁音又は半濁音に変換し、変換された文字を１文字領域に表示することを特徴とする。
【０００９】請求項４記載の発明は、添字のあるメッセージ表示を１文字領域にするか複数文字領域にするかをユーザが選択し、その選択した表示方法に従い表示することを特徴とする。
【００１０】請求項５記載の発明は、文字コードを入力して表示する文字表示装置に係わり、入力され前記文字コードを認識するシフトコード認識手段と、該シフトコード認識手段によりシフトコード認識後文字コードを文字又は添字に変換する文字コード変換手段と、該文字コード変換手段により変換したものが文字か添字かを判断する文字コード判断手段と、該文字コード判断手段により判定されたものが添字であれば前又は後の文字とくっつけて１文字に変換する文字変換手段と、該文字変換手段により変換された文字を表示部に表示するメッセージ表示手段と、を備えたことを特徴とする。
【００１１】請求項６記載の発明は、請求項５記載の発明に係わり、前記文字コード判断手段は、前記文字コード変換手段により変換した文字コードが濁点又は半濁点であるかを判断するものであり、該文字コード判断手段により判定された文字が濁点又は半濁点であれば一つ前の文字を判定する文字判定手段により濁点又は半濁点とくっつくことが可能であると判定された場合前記文字変換手段によりしかるべき濁音又は半濁音に変換することを特徴とする。
【００１２】請求項７記載の発明は、請求項５又は６記載の発明に係わり、添字のある表示を１文字領域にするか複数文字領域使用にするかをユーザが選択できる表示選択メニュースイッチを設け、表示選択メニュースイッチにより予めユーザが設定した表示方法に従いメッセージを表示することを特徴とする。
【００１３】請求項８記載の発明は、文字コードを文字又は添字に変換し、変換したものが文字か文字の前後に添えられた添字かを判断し、添字であれば一つ前又は後の文字とくっつけて１文字に変換して１文字領域に表示する文字表示プログラムを記録した記録媒体である。
【００１４】
【発明の実施の形態】以下、図面を参照して、この発明の実施の形態について説明する。図１は、この発明の一実施の形態である文字表示装置のブロック図、図２は、文字コードの変換表の具体例を示す図、図３は、終了の符号を用いた使用例を示す図、図４は、文字コード変換表示例を示す図、図５は、図１の文字表示装置の動作を示すフローチャート、図６は、この発明のメッセージ表示例を示す図、また、図７は、従来のメッセージ表示例を示す図である。
【００１５】図１に示す文字表示装置は、無線データ端末に適用した例であって、送信機から送られてきた送信信号はアンテナ１を介して無線部２に供給され、復調処理される。無線部２は電池９から電池電圧の供給を受けて動作している。無線部２で復調された信号は制御部３において解読され、この解読された信号が文字表示装置に与えられた個別識別信号と一致した場合、ＬＥＤ、鳴音または振動等の報知手段４により、ユーザに着信があったことを報知する。同時にメッセージ等が送られていれば表示部５に表示を行い、さらに制御部３のＲＡＭ１０４に内容を記録するものである。
【００１６】ユーザはスイッチ７またスイッチ８を押すことにより、いつでもメッセージ内容を読み出すことができる。なお、スイッチ６は様々な機能を設定するメニューモードに入るためのメニュースイッチであり、このスイッチ６を押下することにより一つ前の画面に戻ることができる。スイッチ７はメニューモードに入った場合には選択時の確定スイッチであり、受信待受け時に押すと古いメッセージから新しいメッセージの順に読み出すことができる。スイッチ８はメニューモードに入った場合には選択時の選択スイッチであり、受信待受け時に押すと新しいメッセージから古いメッセージの順に読み出すことができる。昇圧部１０は制御部３へ所要電圧を供給するためのものである。
【００１７】デコーダ１０１は、無線部２から入力された個別識別信号と、予めＲＯＭ１０２に格納されている個別識別信号とを比較し、両者が一致した場合にＣＰＵ１０３へ着信信号を送出するものである。ＣＰＵ１０３は、着信信号を受けると、着信警報報知信号発生回路１０５に対して着信報知信号を発生するように命令を出すものである。その結果、着信警報報知信号発生回路１０５は報知手段４に対して着信報知信号を送出する。さらに、無線部２から入力された個別識別信号の後にメッセージ信号が続いていれば、デコーダ１０１はメッセージ

テップS14)。図6は、この発明のメッセージ表示方法の具体例を示した図であり、濁音または半濁音を表示する際、図7の従来例では2文字分の領域を使用しているが、図6では1文字分の領域を使用して表示していることがわかる。

【0024】以上、この発明の実施例を図面により詳述してきたが、具体的な構成はこの実施例に限られるものではなく、この発明の要旨を逸脱しない範囲の設計の変更等があってもこの発明に含まれる。例えば、上記文字表示装置は、無線データ端末の例を示したが、これに限定するものではなく、あらゆる通信機器はもとより、コンピュータ、パソコン、ワープロなど表示部を有する機器に適用可能である。また、文字コードとして、英、数、カナ等記号を数字2桁単位として送るフリーワードの例を示したが、これに限定されず、コード化した全ての文字を適用可能である。また、上記実施の形態では濁点についてのみ説明したが、半濁点は勿論、前又は後の文字の上又は下にくっつくいわゆる小文字の添字(文字、数字、記号)の文字全てに適用可能である。例えば、図8に(a)ないし(d)示すような添字付きの文字に全て適用可能である。なお、濁点又は半濁点の場合は文字判定手段113で前の文字(清音)とくっつくか否かを判定するが、それ以外の添字の場合は全て前後の文字と合わせて1文字領域に表示するようにすればよい。また、添字のあるメッセージ表示を2文字領域使用にするか1文字領域にするかをユーザが選択し、その選択した表示方法に従い表示するようにすることもできる。例えば、様々な機能を設定するメニューモードに入るためのメニュースイッチ6を押すことにより、従来の2文字領域使用する形態と、この実施の形態で示した1文字領域で表示する形態とをユーザが設定した表示方法に従い表示するようにすることもできる。

【0025】

【効果の説明】以上説明したように、この発明の文字表示装置及び文字表示装置によれば、添字付きの文字を表示する際、文字+添字の2文字構成を1文字構成に変換するので、表示部領域が制限される文字表示装置の表示部において、表示領域をより有効に活用することが可能となると共に、ユーザーにとっても見やすい表示形態となり、より使い勝手のよい文字表示装置の提供が可能となる。

【図面の簡単な説明】

【図1】この発明の実施の形態である文字表示装置のブロック図である。

【図2】フリーワードの変換表の具体例を示す図である。

【図3】終了の符号を用いた使用例を示す図である。

【図4】フリーワード変換表示例を示す図である。

【図5】この発明の文字表示装置の動作を示すフローチャートである。

【図6】この発明のメッセージ表示例を示す図である。

【図7】表示する文字及び添字の例を示す図である。

【図8】従来のメッセージ表示例を示す図である。

【符号の説明】

5　表示部

110　シフトコード認識手段

111　フリーワード変換手段

112　フリーワード判断手段

113　文字判定手段

114　文字変換手段

115　メッセージ表示手段

【図2】

行＼列	1	2	3	4	5	6	7	8	9	0
1	ア	イ	ウ	エ	オ	A	B	C	D	E
2	カ	キ	ク	ケ	コ	F	G	H	I	J
3	サ	シ	ス	セ	ソ	K	L	M	N	O
4	タ	チ	ツ	テ	ト	P	Q	R	S	T
5	ナ	ニ	ヌ	ネ	ノ	U	V	W	X	Y
6	ハ	ヒ	フ	ヘ	ホ	Z	?	!	ー	／
7	マ	ミ	ム	メ	モ	¥	&	○	◇	△
8	ヤ	(	ユ	)	ヨ	*	#	SP	〒	SP
9	ラ	リ	ル	レ	ロ	1	2	3	4	5
0	ワ	ヲ	ン	゛	゜	6	7	8	9	0

【図3】

終了の符号を用いた使用例

<スペース使用例>

受信　:「＊3＊44513228513SP03」

表示　:「トウキョウ　03」

<U使用例(＊3＊4)＝(ー, ー)の時>

受信　:「ー4513228513U10－20」

表示　:「トウキョウU10－20」

<ハイフン使用例(＊3＊4)＝(-, ー)の時>

受信　:「-- 4513228513－10－10」

表示　:「トウキョウ－10－10」

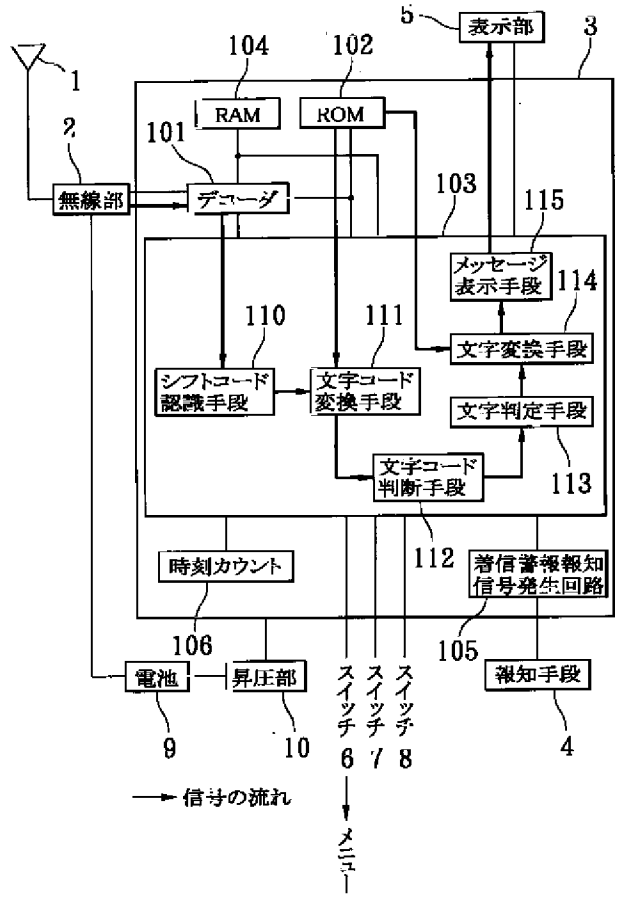
【図6】

ヨヤクガイッパイデス

【図7】

(a)　X_2,　(b)　Y^2,　(c)　a^n,　(d)　^2H　(e)　A'

【図1】



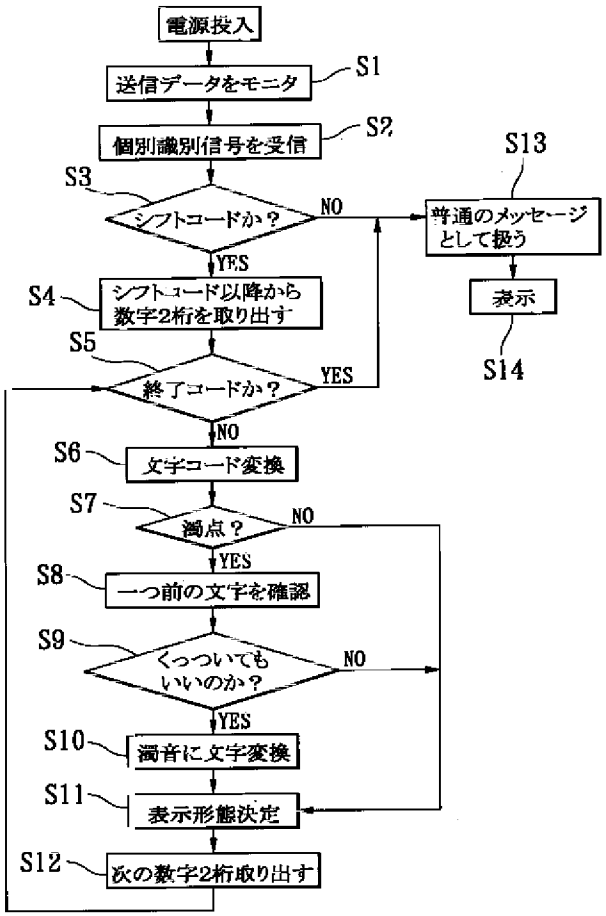
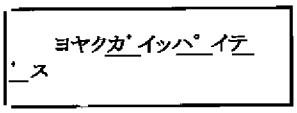
【図4】

フリーワード変換表示例

(＊3＊4)＝(－，－)の指定の時

受信メッセージ	メッセージ表示
「109—32630481(SP)10－00」	「109シブヤ 10—00」
「109—32630481[10])」	「109－シブヤ[10]」
「109—326304815—3204」	「109シブヤ5ジ」
「—32630481——719312」	「シブヤーマルイ」
「——320332048323」	「—シンジュク」

【図5】



【図8】